Appendixes

Appendix 1 Sediment sample description and locations

Sample number	Depth (cm)	Sample Description	Location
DEL-S1	69–89	Grey, pyrite-rich sand	1 m from DEL-WS 2
DEL-S2	79–99	Brown, iron-oxide stained, medium grained sand, some fine pyrite	1 m east DEL-WS4
DEL-S3	65–95	Brown, iron-oxide stained, medium grained sand, some fine pyrite	1 m west DEL-WS 6
DEL-S4	105–120	See sample DEL-WS8-S	1.5 m west DEL-WS 8
DEL-S5	100–127	Brown, iron-oxide stained, medium grained sand, minor pyrite	1 m north DEL-WS11
DEL-S6	100–120	Brown, iron-oxide stained, medium grained sand, minor pyrite	1.5 m south DEL-WS15
DEL-S7	65–95	Black pyritic mud	4 m south DEL-WS16
DEL-S8	65–95	Strongly iron-oxide stained, brown medium grained sand	3 m north DEL-WS17
DEL-S9	0	Surficial fresh tailings deposit. Coarse grains of pyrite, fine to medium grained sand	North bank of King River near delta
DEL-S10	2–5	Dark-grey, pyrite-rich, fine grained sand, some fine clay	As for DEL-S9
DEL-S11	30–40	Dark grey-brown, medium to coarse grained sand (with subordinate clay fraction) with pyrite	As for DEL-S9
DEL-S20	10	Brown, iron-oxide stained, medium grained sand, some pyrite	Point 3 line 3
DEL-S21	15–20	Tan, partially iron-oxide stained, medium grained sand	Point 4 line 3
DEL-S22	10	Grey-brown clay	Point 5 line 3
DEL-S23	20	Brown, strongly iron-oxide stained, coarse grained sand	Point 5 line 3
DEL-S24	20	Brown, iron-oxide stained, medium grained sand	Point 9 line 3
DEL-S25	20	Light-brown, medium grained sand	Point 11 line 3
DEL-S26	10–30	Laminated, partially iron-oxide stained, fine to medium grained sand with some pyrite	Point 13 line 3
DEL-S27	10–30	Iron-oxide stained, coarse grained sand with pyrite	Point 13 line 3
DEL-S28	10–30	Microbial pyrite on cardboard	Point 13 line 3
DEL-S29	10–30	Black pyritic mud	DEL-WS3
DEL-S30	10–30	Brown, iron-oxide stained, fine to medium grained sand	DEL-WS3

Sample number	Depth (cm)	Sample Description	Location
DEL-S31	0–10	Brown, iron-oxide stained sand	Point 3 line 1
DEL-S32	15–30	Black pyritic mud	Point 3 line 1
DEL-S33	≈30	Iron-oxide stained, brown fine to medium grained sand	Point 7 line 1
DEL-S34	≈30	Olive-tan sand, some microbial pyrite/organic matter, slag?	Point 3 line 2
DEL-S35	40	Strongly layered orange sand and grey clay sediment	Point 10 line 2
DEL-S36	0–20	Brown, strongly iron-oxide stained, medium grained sand	DEL-WS10
DEL-S37	≈30	Iron-oxide stained, medium grained sand	Point 3 line 4
DEL-S38	≈30	Brown, iron-oxide stained medium grained sand, rare grey clay layers	Point 5 line 4
DEL-S39	≈30	Brown iron-oxide stained, fine-medium grained sand	Point 7 line 4
DEL-S40	≈30	Grey, pyritic, fine grained sand	Point 10 line 4
DEL-S41	0–10	Fine grained sand partly iron-oxide stained, mottled colour variation olive-tan	Point 12 line 4
DEL-S42	20–30	Fine grained sand mottled colour variation grey-brown	Point 12 line 4
DEL-S43	≈30	Dark brown iron-oxide stained, medium-coarse grained sand	Point 3 line 5
DEL-S44	≈30	Grey-light brown, fine grained sand	Point 6 line 5
DEL-C1-0-20	0–20	Grey-brown, fine grained sand	Drillhole DEL-C1
DEL-C1-20-70	20–70	Strongly iron-oxide stained medium-coarse grained, grey-brown sand	Drillhole DEL-C1
DEL-C1-70-135	70–135	Grey fine-medium grained sand, some pyrite, some iron-oxide staining	Drillhole DEL-C1
DEL-C1-135-175	135–175	Light-grey to black, pyrite-rich fine grained silty clay	Drillhole DEL-C1
DEL-C1-230 SP	230	Light-grey to black, pyrite-rich fine grained silty clay	Drillhole DEL-C1
DEL-C1-175-235	175–235	Iron-oxide stained light brown sand	Drillhole DEL-C1
DEL-C1-235-250	235–250	Grey-black, organic rich sand	Drillhole DEL-C1
DEL-C1-250-330	250–330	Grey-brown, medium grained sand	Drillhole DEL-C1
DEL-C1-330-365	330–365	Grey-brown, fine grained sand, high clay content	Drillhole DEL-C1
DEL-C1-365-420	365–420	Grey-brown, fine-medium grained sand	Drillhole DEL-C1

Sample number	Depth (cm)	Sample Description	Location
DEL-C1-420-550	420–550	Grey-brown, medium grained sand	Drillhole DEL-C1
DEL-WS3-S	29–49	Light-brown, medium grained sand	DEL-WS3
DEL-WS5-S	34–54	Light-brown, medium-coarse grained sand, some slag fragments	DEL-WS5
DEL-WS8-S	105–120	Light-brown, medium-coarse grained sand	1.5 m west DEL-WS8
DEL-WS9-S	46–66	Brown medium-coarse grained sand, some slag fragments, some pyritic black sand	DEL-WS9
DEL-WS10-S	31–51	Brown medium-coarse grained sand, some slag fragments	DEL-WS10
DEL-WS12-S	29–49	Light-grey, fine grained sand	DEL-WS12
DEL-WS13-S	36–56	Light-brown fine-medium grained sand some iron-oxide fragments, some pyritic sand	DEL-WS13
D-S8	0–60	Orange-brown, highly iron-oxide stained, medium-coarse grainedsand with rare organic matter	3 m from D-W2
D-S9	60–100	Brown-grey medium-fine grained sand/clay with organic fragments	1 m from D-W1 toward river
H-S7	25–45	Dark-brown iron-oxide stained medium grained sand	Bank H, near H-W1
H-S8	25–45	Orange, fine grained sand with clay and organic material	Bank H, near H-W1
H-W1-335	335	Orange-brown very fine grained sand and clay, some organic matter	Bank H, H-W1
H-W3-365	355	Light-grey, fine grained sand and clay. Some organic matter as small fragments	Bank H, H-W3
H-WD2-453	450	Mid-grey fine-medium grained sand and clay contains green-grey leaf matter. High organic content. H_2S odour detected	Bank H, H-WD2
H-WS2-355	340	Grey-blue-black sediment, black component smells of H_2S. Light-grey fraction is fine sand with clay	Bank H, H-WS2
N-S7	0–30	Medium-coarse grained iron-oxide stained orange sand	2 m from N-W1 toward N-W2
N-S8	0	Olive, pyrite rich, medium grained sand occurring as a surface coating on the down river end of bank N	Bank N
N-S9	0–60	Strongly iron-oxide stained, orange medium grained sand	55 m along strike of N-W1/N-W2; away from river, ≈ 60 m from N-W2
N-W1-483	400	Homogeneous and well sorted, mottled light grey-brown fine-medium grained sand, with organic fragments. Little pyrite visible	Bank N, N-W1
N-W2-425	415	Light grey-brown, fine sand/clay, high organic component (visible tree material). Very little pyrite. H_2S odour detected	Bank N, N-W1

Sample number	Depth (cm)	Sample Description	Location
N-W3-353	343	Light-grey fine grained sand/clay containing organic fragments. Fine sand well sorted containing little water. Pyrite evident amongst organic fragments	Bank N, N-W1
R-C1-0-20	0–20	Quartz dominated, limonitic, orange-brown, fine to medium grained sand, relatively uniform grainsize with thin silty laminations in places. Rare reduced layers associated with thin (1–2 mm) organic-rich bands	Bank R, drillhole R-C1
R-C1-50-70	50–70	As for R-C1-0-20 (laminated)	Bank R, drillhole R-C1
R-C1-100-120	100–120	As for R-C1-0-20 but more intensely iron-oxide stained	Bank R, drillhole R-C1
R-C1-150-250	150–250	Fine-grained light grey-olive sand, fine pyrite is visible (≈5–20%), little iron-oxide staining	Bank R, drillhole R-C1
R-C1-250-280	250–280	Thinly laminated black-grey, pyrite rich, fine grained sand and clay, with organic rich material in narrow laminations. Twigs and leaves (myrtle, acacia) common. H_2S odour evident	Bank R, drillhole R-C1
R-C1-330-350	330–350	As for R-C1-250-280	Bank R, drillhole R-C1
R-C1-350-370	350–370	Grey, pyritic (1–3%), very fine grained sand, water saturated	Bank R, drillhole R-C1
R-C1-400-420	400–420	Grey-black organic-rich clay. No obvious detrital pyrite but may be authigenic pyrite films on organic matter	Bank R, drillhole R-C1
R-C1-500-520	500–520	Light brown clay, some organic matter, strong smell of H_2S in places. Clay content ranges from 0% for tree material to typically 80–90%	Bank R, drillhole R-C1
R-C1-580-600	580–600	Iron-oxide stained, fine-medium grained quartz-rich sand	Bank R, drillhole R-C1
R-C1-620-640	620–640	Medium grained orange-brown-grey sand. Probably pre-mine sediment	Bank R, drillhole R-C1
R-C1-650-670	650–670	As for R-C1-620-640, less iron-oxide stained	Bank R, drillhole R-C1
R-C1-730-745	730–745	Grey-white, coarse grained siliceous sand. Probably pre-tailings river sand	Bank R, drillhole R-C1
R-WD1-556	550	Water saturated, grey to grey-brown medium grained sand and gravel. Some organic fragments	Bank R, R-WD1
R-WD2-700	130	Grey coarse sand to well rounded gravel. Minor clay associated with organic fragments	Bank R, R-WD2
R-W3-400	400	Brown, iron-oxide stained fine-medium grained sand	Bank R, R-W3
R-W3-394	250–300	Orange-grey clay with some fine-medium grained sand layers and organic material. H_2S odour	Bank R, R-W3
R-W2S-570	640	Grey-blue fine grained homogeneous clay with fine sand. Some organic matter, no odour	Bank R, R-WS2
R-WS1-489	480	Orange-brown, iron-oxide stained fine grained sand and clay	Bank R, R-WS1
STN-16-0	0	Orange-brown grit	Station 16, figure 5

Sample number	Depth (cm)	Sample Description	Location
STN-16-0.6	60	Orange-brown grit (red iron-oxide coating in bottles)	Station 16, figure 5
STN-16-1.25	125	Brown grit	Station 16, figure 5
STN-16-1.5	150	Coarse brown grit	Station 16, figure 5
STN-16-1.85	185	Coarse sand/grit with very fine pyrite	Station 16, figure 5
STN-16-2.5	250	Pebble grit with minor pyrite	Station 16, figure 5
STN-18-0	0	Coarse grained sand/pebble grit, little slag, pyrite? (red iron-oxide coating in bottle)	Station 18, figure 5
STN-18-0.625	62.5	Coarse grained sand/pebble grit, little slag, pyrite? (red iron-oxide coating in bottle)	Station 18, figure 5
STN-18-1.25	125	Coarse grained sand/pebble grit, little slag, pyrite? (red iron-oxide coating in bottle)	Station 18, figure 5
STN-18-1.9	190	Pebble gravel, no slag or pyrite	Station 18, figure 5
STN-18-2.5	250	Pebble gravel, no slag or pyrite	Station 18, figure 5
STN-19-C-0	0	Brown-grey fine to medium grained sand with fine pyrite (red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-C-0.65	65	Grit/gravel with common slag, some fine pyrite (red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-C-1.3	130	Grit/gravel with common slag, some fine pyrite (minor red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-C-2.0	200	Grit/gravel with minor? slag, no red iron-oxide coating	Station 19, figure 5
STN-19-C-2.6	260	Grit/gravel with minor? slag, no red iron-oxide coating	Station 19, figure 5
STN-19-C-3.3	330	Grit/gravel with minor? slag, no red iron-oxide coating	Station 19, figure 5
STN-19-C-4.1	410	Slag rich grit/gravel with minor pyrite	Station 19, figure 5
STN-19-C-4.5	450	Slag rich grit/gravel with minor pyrite	Station 19, figure 5
STN-19-C-5.4	540	Slag rich grit/gravel with coarse pebbles	Station 19, figure 5
STN-19-C-6.0	600	Coarse sand/gravel with coarse pebbles, no slag or pyrite	Station 19, figure 5
STN-19-L-0	0	Pebble with slag and minor pyrite (red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-L-0.5	50	Pebble with slag and minor pyrite (red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-L-1.1	110	Pebble with slag and minor pyrite (red iron-oxide coating in bottle)	Station 19, figure 5
STN-19-L-1.6	160	Pebble grit with little if any pyrite, little slag? predominantly rock fragments	Station 19, figure 5

Sample number	Depth (cm)	Sample Description	Location
STN-19-L-2.2	220	Pebble grit with little if any pyrite, little slag? predominantly rock fragments	Station 19, figure 5
STN-19-L-2.7	270	Pebble grit with little if any pyrite, little slag? predominantly rock fragments	Station 19, figure 5
STN-19-L-3.3	330	As above but with very minor fine pyrite	Station 19, figure 5
STN-19-L-4.4	440	Slag grit (red iron-oxide coating in bottle)	Station 19, figure 5
STN-20-C-0	0	Fine medium grey brown sand with minor pyrite	Station 20, figure 5
STN-20-C-0.6	60	Medium-coarse grained sand/grit with common slag, some pyrite	Station 20, figure 5
STN-20-C-1.2	120	Medium-coarse grained sand/grit with common slag, some pebbles, minor pyrite	Station 20, figure 5
STN-20-C-1.8	180	Medium-coarse grained sand/grit with common slag, some pebbles, minor pyrite (red iron-oxide coating in bottle)	Station 20, figure 5
STN-20-C-2.4	240	Coarse grained sand/slag grit with minor pyrite	Station 20, figure 5
STN-20-C-3.0	300	Coarse grained sand/slag grit with minor pyrite	Station 20, figure 5
STN-20-C-3.6	360	Coarse grained sand/slag grit with minor pyrite	Station 20, figure 5
STN-20-C-4.8	480	Coarse grained sand with slag and moderate pyrite content (red iron-oxide coating in bottle)	Station 20, figure 5
STN-20-C-6.0	600	Pebble/sand grit, little or no pyrite and slag	Station 20, figure 5
STN-20-R-0	0	Brown medium grained sand, partly iron-oxide stained, very minor pyrite	Station 20, figure 5
STN-20-R-0.6	60	As above, but with more pyrite	Station 20, figure 5
STN-20-R-1.2	120	Coarse sand with common slag, some pebbles/grit	Station 20, figure 5
STN-20-R-1.8	180	Coarse sand with common slag, some pebbles/grit and minor pyrite	Station 20, figure 5
STN-20-R-2.4	240	Medium-coarse grained sand with slag, moderate pyrite	Station 20, figure 5
STN-20-R-3.0	300	Medium-coarse grained sand with slag, moderate pyrite	Station 20, figure 5
DELTA-0	0	Brown, medium grained iron-oxide stained sand	Delta, figure 5
DELTA-0.5	50	Brown, medium grained iron-oxide stained sand	Delta, figure 5
DELTA-1.0	100	Fine-medium grained pyrite rich sand with organic matter	Delta, figure 5
DELTA-1.5	150	Fine-medium grained pyrite rich sand with organic matter	Delta, figure 5
DELTA-2.0	200	Fine-medium grained pyrite rich sand with organic matter	Delta, figure 5

Sample number	Depth (cm)	Sample Description	Location
DELTA-2.5	250	Medium grained sand, some pyrite and organic matter	Delta, figure 5
DELTA-3.0	300	Medium grained sand, partly iron-oxide stained, minor pyrite	Delta, figure 5
DELTA-4.0	400	Medium grained sand, partly iron-oxide stained, minor pyrite	Delta, figure 5
DELTA-5.0	500	Fne grained grey sand, minor pyrite, minor organic matter	Delta, figure 5
DELTA-6.0	600	Fine grained grey sand, minor pyrite, minor organic matter	Delta, figure 5
DELTA-7.0	700	Grey-brown very fine sand and mud	Delta, figure 5
DELTA-8.0	800	Grey-brown very fine sand and mud	Delta, figure 5
DELTA-9.0	900	Grey-brown very fine sand and mud	Delta, figure 5
DELTA-10.0	1000	Fine sand, some clay fraction, minor organic material and pyrite	Delta, figure 5
KR 1	0	Iron-oxide stained, orange brown, coarse grained, slag-rich sand. Moderately cemented	See figure 24
DT 1	0	Iron-oxide stained, brown, coarse grained sand. Partially lithified	South lobe of King River delta

Appendix 2 Geological logs of drillholes DEL-C1 and R-C1

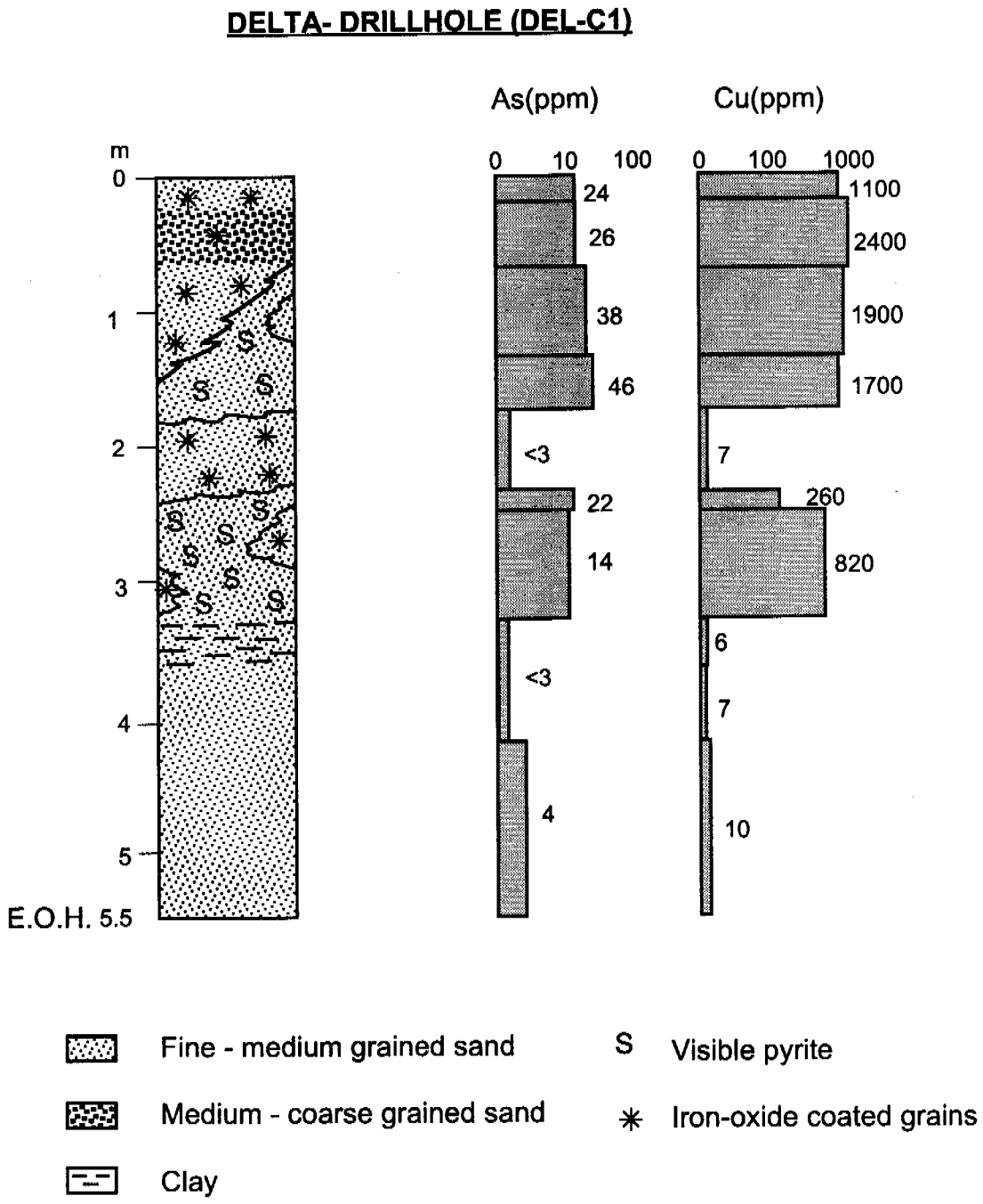

Figure A2.1 Geological cross section for drillhole DEL-C1

BANK R - DRILLHOLE (R-C1)

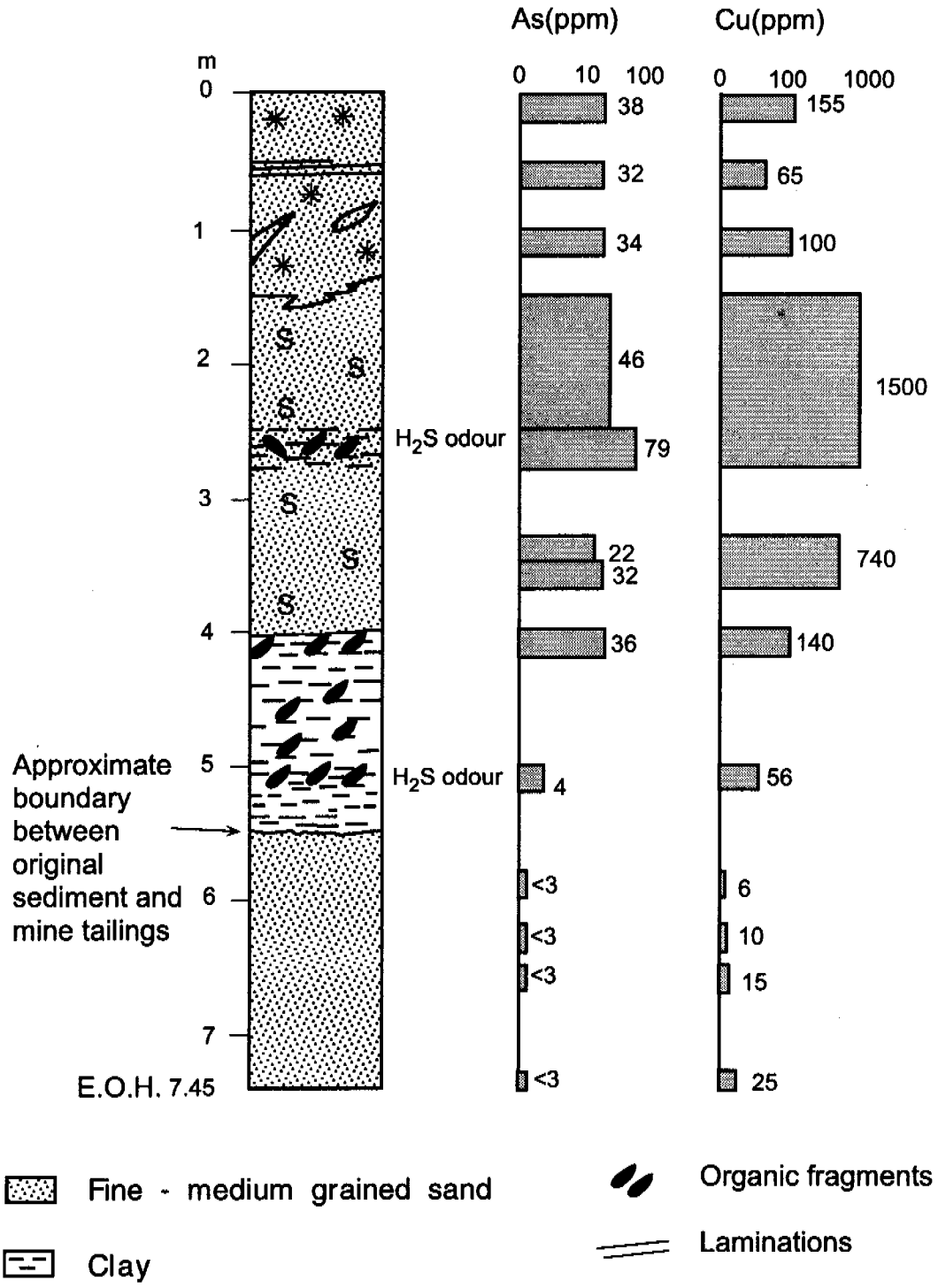

Figure A2.2 Geological cross section of drillhole R-C1

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